نام و نام خانوادگی ....[illegible].... پاسخنامه تشریحی تکلیف شماره .... کلاس ....دوازدهم B....

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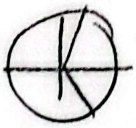
$8\cos x - \tan^2 x = 1 \to 8\cos x = 1+\tan^2 x = \frac{1}{\cos^2 x} \to 8\cos^3 x = 1$

$\to \cos x = \frac{1}{2} \to x = 2k\pi \pm \frac{\pi}{3}$



در بازه $[0, 2\pi]$ ۲ جواب دارد

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$5\sin^2 x + 2\cos 3x = -2 \to 8\cos^3 x - 5\cos^2 x - 6\cos x + 7 = 0$

($\sin^2 x = 1-\cos^2 x$ ، $\cos 3x = 4\cos^3 x - 3\cos x$)

$\to (\cos x + 1)(8\cos^2 x - 13\cos x + 7) = 0 \to \cos x = -1$ ($\Delta < 0$)

$\to x \in -\pi, \pi$ ۲ جواب

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$2\sin x \cos 2x + \sin x = 1 \quad -4\sin^3 x + 3\sin x - 1 = 0$

($\cos 2x = 1 - 2\sin^2 x$)

$(\sin x + 1)(-4\sin^2 x + 4\sin x - 1) = 0$ ، $-4\sin^2 x + 4\sin x - 1 = -(2\sin x - 1)^2$

$\sin x = -1 \quad 2k\pi - \frac{\pi}{2} \xrightarrow{[0, 2\pi]} \frac{3\pi}{2}$

$\sin x = \frac{1}{2} \quad 2k\pi + \frac{\pi}{6} \to \frac{\pi}{6}$ ، $2k\pi + \frac{5\pi}{6} \to \frac{5\pi}{6}$

جمع: $\frac{\pi}{6} + \frac{5\pi}{6} + \frac{3\pi}{2} = 2/5\pi$

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$\frac{1}{\sin(\frac{\pi}{2} + 2x)} + \frac{1}{\cos(\frac{\pi}{2} + 4x)} = 0 \to \frac{1}{\cos 2x} - \frac{1}{\sin 4x} = 0$

$\to \frac{1}{\cos 2x} = \frac{1}{\sin 4x} \to \cos 2x = \cos(\frac{\pi}{2} - 4x) \to$

$2x = 2k\pi + \frac{\pi}{2} - 4x \to x = \frac{k\pi}{3} + \frac{\pi}{12}$

$2x = 2k\pi - \frac{\pi}{2} + 4x \to x = k\pi + \frac{\pi}{4}$ ✗ (مخرج را صفر کرده)

$x = \frac{k\pi}{3} + \frac{\pi}{12} \xrightarrow{[0, \pi]} \frac{\pi}{12}\ ✓ \quad \frac{5\pi}{12}\ ✓ \quad \frac{9\pi}{12}$ (✗ مخرج صفر) $\to$ اجتماع: $\frac{5\pi}{12} - \frac{\pi}{12} = \frac{4\pi}{12} = \frac{\pi}{3} = \alpha$

$\tan 2\alpha = -\sqrt{3}$

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$m(\cos x - \sin x) - 3\sqrt{6}\sin 2x = \sqrt{6} \quad \{\cos(x + \frac{\pi}{4}) = \frac{1}{\sqrt{3}} \to \cos x \frac{\sqrt{2}}{2} - \sin x \frac{\sqrt{2}}{2} = \frac{\sqrt{3}}{3}$

$\cos x - \sin x = \frac{\sqrt{6}}{3} \to -\sqrt{2}\sin(x - \frac{\pi}{4}) = \frac{\sqrt{6}}{3} \to \sin(x - \frac{\pi}{4}) = -\frac{\sqrt{3}}{3} \to \cos 2\theta \quad \cos(2x - \frac{\pi}{2}) = \sin 2x$

$= 1 - 2\sin^2\theta = 1 - 2 \times \frac{1}{3} = \frac{1}{3} \to m \times \frac{\sqrt{6}}{3} - 3\sqrt{6} \times \frac{1}{3} = \sqrt{6}$

$\to \frac{m}{3} - 1 = 1 \to m = 6$

$\sin(x+\frac{\pi}{6}) / \underbrace{\cos(x-\frac{\pi}{3})}_{\cos(\frac{\pi}{3}-x)} = 1 \rightarrow \cos(\frac{\pi}{3}-x) = 1 \rightarrow \cos(\frac{\pi}{3}-x) = \pm 1$ $\frac{\pi}{3}-\alpha = 2k\pi \rightarrow x = 2k\pi+\frac{\pi}{3} \rightarrow \frac{\pi}{3}$ ۲ جواب دارد $\frac{\pi}{3}-x = 2k\pi+\pi \rightarrow x = 2k\pi - \frac{2\pi}{3} \rightarrow \frac{4\pi}{3}$	6
$\sin x + \sqrt{3}\cos x = \sqrt{2} \rightarrow \sqrt{3+1}\,\sin(x+\frac{\pi}{3}) = \sqrt{2}$ $\rightarrow 2\sin(x+\frac{\pi}{3}) = \frac{\sqrt{2}}{2} = \sin(\frac{\pi}{4})$ $x+\frac{\pi}{3} = 2k\pi+\frac{\pi}{4} \rightarrow x = 2k\pi - \frac{\pi}{12}$ $\rightarrow -\frac{\pi}{12}, \frac{23\pi}{12}$ $x+\frac{\pi}{3} = 2k\pi + \frac{3\pi}{4} \rightarrow x = 2k\pi + \frac{5\pi}{12}$ $\rightarrow \frac{5\pi}{12} \rightarrow$ مج. $\frac{4\pi}{12}+\frac{23\pi}{12} = \frac{27\pi}{12} = \boxed{\frac{9\pi}{4}}$	7
$4\sin x \sin(\underbrace{\frac{3\pi}{2}-x}_{-\cos x}) = 1 \rightarrow -2\sin 2\alpha = 1 \rightarrow \sin 2\alpha = -\frac{1}{2} = \sin(-\frac{\pi}{6})$ $2\alpha = 2k\pi - \frac{\pi}{6} \rightarrow \alpha = k\pi - \frac{\pi}{12} \rightarrow \frac{11\pi}{12}, \frac{23\pi}{12}$ مج. $\rightarrow \boxed{5\pi}$ $2\alpha = 2k\pi - \frac{5\pi}{6} \rightarrow \alpha = k\pi - \frac{5\pi}{12} \rightarrow \frac{7\pi}{12}, \frac{19\pi}{12}$	8
$(1+\cos 2\alpha)(1+\cos 4\alpha)(1+\cos 8\alpha) = \frac{1}{8}$ $\rightarrow 2\cos^2\alpha \times 2\cos^2 2\alpha \times 2\cos^2 4\alpha \rightarrow (\cos\alpha \times \cos 2\alpha \cos 4\alpha)^2 = \frac{1}{64}$ $(\times\frac{\sin\alpha}{\sin\alpha}\cos x \cos 2\alpha \cos 4\alpha)^2 = \frac{1}{64} \rightarrow (\frac{\sin 8\alpha}{8\sin\alpha})^2 = \frac{1}{64} \rightarrow \sin^2 8\alpha = \sin^2\alpha$ $\sin 8\alpha = \sin\alpha$ $\sin 8\alpha = \sin -\alpha$ سالردن جواب ها $\rightarrow$ $\max x = \frac{8\pi}{9}$	9
$\tan 3x \times \tan(x) = 1 \rightarrow \tan 3x = \frac{1}{\tan(x)} = \cot x = \tan(\frac{\pi}{2}-x)$ $3x = k\pi + \frac{\pi}{2} - x \rightarrow x = \frac{k\pi}{4} + \frac{\pi}{8} \xrightarrow{[\pi, 2\pi]} \frac{9\pi}{8}, \frac{11\pi}{8}, \frac{13\pi}{8}, \frac{15\pi}{8}$ مج. $= \frac{48\pi}{8} = \boxed{6\pi}$	10